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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/927,577	08/13/2001	Graham Bank	085874-0364	5427
22428	7590	07/14/2005	EXAMINER	
FOLEY AND LARDNER SUITE 500 3000 K STREET NW WASHINGTON, DC 20007			HARVEY, DIONNE	
			ART UNIT	PAPER NUMBER
			2646	

DATE MAILED: 07/14/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

09/927,577

Applicant(s)

BANK, GRAHAM

Examiner

Dionne N. Harvey

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 11/12/2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-19 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-19 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

## DETAILED ACTION

### ***Claim Rejections - 35 U.S.C. 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

1. **Claims 1-19** are rejected under 35 U.S.C. 103(a) as being unpatentable over **Watters et al. (US 3,347,335)** in view of **Sato (JP 01135291 A)**

Regarding claims 1 and 10, in **figure 8**, Watters teaches loudspeaker comprising: a panel **(1,5,1')** capable of supporting bending waves (*see, column 2, lines 50-52*) and at least two exciters **(3)** mounted to the panel for exciting bending waves in the panel to produce an acoustic output. In **column 4, lines 65-68**, Watters teaches that "...it is also possible to detect or radiate different signals under complementary angles..."

Though Watters teaches that the transducers may radiate different signals, he does not clearly state that the different signals originate from independent drive sources.

In **figure 3**, Sato teaches a loudspeaker **(1c)** comprising: a panel **(17)** and at least two exciters **(21a,21b)** mounted to the panel, wherein each exciter is connected to a different input terminal; and in the 'Abstract' portion Sato further

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teaches that "independent" signals are supplied from two separate input terminals to the at least two exciters **(21a,21b)**.

In **figure 4**, Sato further teaches that additional speaker elements **(1a, 1b)** may be used for reproducing audio signals in the upper frequency ranges, and therefore, Sato teaches that respective exciters **21a, 21b** in speaker **1c** are not used for outputting both upper and lower frequency ranges of a single signal. Therefore, it appears that the two exciters **(21a, 21b)** in loudspeaker **1c**, are indeed used for respectively reproducing "independent" audio signals, as claimed.

It would have been obvious for one of ordinary skill in the art at the time of the invention to combine the teachings of Watters and Sato, for the purpose of radiating independent audio signals from a low-weight acoustic radiating panel loudspeaker which is capable of providing maximum acoustic radiation over a wide frequency band.

Regarding claims 2 and 11, Watters teaches the loudspeaker structure as set forth by the limitations of claim 1, and therefore teaches that the exciters are *capable of* generating a maximum sound pressure level, the maximum sound pressure levels being different, as broadly claimed. Please note, that the recitation that an element is "capable of" performing a function is not a positive limitation but only requires the ability to so perform.

Regarding claims 3 and 6, Watters teaches the loudspeaker structure as set forth by the limitations of claim 1, and therefore teaches that each of said exciters is *capable of* generating sound across a maximum frequency bandwidth,

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the maximum frequency bandwidth of one of the exciters being greater than that of the other exciter(s).

Regarding claims 4,7,13 and 16, Watters teaches a loudspeaker functioning according to bending wave principle, wherein the multiple exciters are located at predetermined locations so as to increase the radiation efficiency, and thereby appears to teach that at least a first of said exciters is mounted on said panel at a location having a higher number of resonance anti-nodes than the location at which another exciter is mounted.

Regarding claims 5,8,14 and 17, shown in **figure 6**, Watters teaches the use of at least three exciters; in **column 4, lines 64-75**, Watters teaches that the respective exciters may be used to radiate sound frequencies of respectively higher and lower bandwidths, thus reading on "comprising first, second and third exciters, wherein the third exciter is capable of generating sound across a maximum frequency bandwidth less than that of said second exciter"; and further Watters teaches predetermined positioning of said exciters on the resonant panel, which appears to read on "third exciter being mounted on said panel at a location having a lower number of vibrationally active resonance anti-nodes than the location at which said second exciter is mounted."

Regarding claim 9, Watters does not specifically teach that the loudspeaker may be adapted for installation and operation in a ceiling tile.

However, the Examiner takes Official Notice that the adaptation of a loudspeaker for installation and operation in a ceiling tile is well known in the art and it would have been obvious to adapt a flat loudspeaker for installation and

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operation as a ceiling tile, thereby overcoming the faults of existing technology which includes excessive sound intensity, directional effects and poorer intelligibility.

Regarding claims 12 and 15, Watters teaches the loudspeaker structure as set forth by the limitations of claim 1, and therefore teaches that each of said exciters is *capable of* generating sound across a maximum frequency bandwidth, the maximum frequency bandwidth of one of the exciters being greater than that of the other exciter(s).

Regarding claim 18, in figure 8, Watters teaches a method of operating a loudspeaker, as inherently taught by the structure of the apparatus, comprising a panel (**1,5,1'**) capable of supporting bending waves (**see column 2, lines 50-52**) and at least two exciters (**3**) mounted to the panel for exciting bending waves in the panel to produce an acoustic output.

Watters does not clearly teach that the different signals originate from independent drive sources.

In **figure 3**, Sato teaches a loudspeaker **1c** comprising: a panel (**17**) and at least two exciters (**21a,21b**) mounted to the panel wherein each exciter is connected to a different input terminal; and in the 'Abstract' portion Sato further teaches that "independent" signals are supplied from two separate input terminals to the at least two exciters (**21a,21b**).

In **figure 4**, Sato further teaches that additional speaker elements (**1a, 1b**) may be used for reproducing audio signals in the upper frequency ranges, and therefore, Sato teaches that respective exciters **21a, 21b** in speaker **1c** are not

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used for outputting both upper and lower frequency ranges of a single signal.

Therefore, it appears that the two exciters (**21a, 21b**) in loudspeaker **1c**, are indeed used for respectively reproducing "independent" audio signals, as claimed.

It would have been obvious for one of ordinary skill in the art at the time of the invention to combine the teachings of Watters and Sato, for the purpose of radiating independent audio signals from a low-weight acoustic radiating panel loudspeaker which is capable of providing maximum acoustic radiation over a wide frequency band.

Regarding claim 19, the combination of Watters and Sato does not clearly teach that the first, second and third exciters are driven so as to produce an alarm signal, signal conditioning signal, and music/or speech signal, respectively.

However, Sato does not restrict to the reproduction of audio signals from any particular sources. Therefore, it would have been obvious for one of ordinary skill in the art at the time of the invention to alter the device of Sato, such that speaker **1c** reproduces signals from any variety of audio sources, such as a music source and public announcement source, etc. as desired by the user.

### ***Response to Arguments***

Applicant's arguments with respect to claims 1-19 have been considered but are moot in view of the new ground(s) of rejection.

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**Conclusion**

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dionne N. Harvey whose telephone number is 571-272-7497. The examiner can normally be reached on 9-5:30 M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Sinh Tran can be reached on 571-272-7564. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

D. Harvey

  
SUHAN M  
PRIMARY EXAMINER